Agroholdings in Russia: Breaking the Vicious Circle?

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The paper discusses the accelerated emergence of agroholdings in the Russian Federation. It is argued that the foundation of these highly integrated structures is due to the special (macro-)economic and institutional condition of the transition process in Russia. Moreover, it is shown that agricultural enterprises which are part of an agroholding were lacking behind other organisational forms in terms of economic efficiency. One reason for this finding is the highly centralized decision structures which, as experiences in Western Europe shows, are only suitable for very special agricultural value chains, but not for agriculture in general.

Keywords: Firm Organisation, Vertical Integration, Agricultural Technology, Farm Input Market

1 INTRODUCTION

Prior to transition there existed vertically and horizontally highly integrated structures in the Soviet agro-food chain. However, these structures were not the result of economic considerations but a consequence of political and ideological reasoning. After the collapse of the system of central planning, the vertical structures experienced a fundamental transformation insofar as the hierarchical form of co-ordination was substituted by barter, markets and contracts. In Russia, a revival of quasi-central planning structures in form of agroholdings and agro-financial-industrial complexes (AFIG) is observed. These groups are entireties of legal and natural persons, which are linked to each other by contractual and/or asset relationships. Often, the holdings cover all stages of the food chain from input supply to processing and wholesaling/retailing. Moreover, some organizations also contain a bank or enterprises from other sectors like oil industry or mining. In several holdings the regional government controls a significant part of the shares.

The main objective of this paper is to discuss the sustainability of the restructuring of the agricultural value chains. The focus will be on the efficiency of agricultural production. However, in order to answer this question, the causes for the creation of these groups and the impact on the efficiency of agricultural production are analysed. Institutional economics is used to explain the first sub-goal. Efficiency is assessed with Hayami and Ruttan’s (1986) induced innovation hypothesis. The procedure is follows the structure of objectives. However, in order to give an impression about the significance and particularities of agroholdings some empirical observation will be presented first.

2 EMPIRICAL FACTS

2.1 Significance

Although there exist several analyses on this new development, there are no detailed and consistent information about the new players in Russian agriculture. Some researchers expected that in 2001 about 93 agroholdings and 13 AFIGs exist. These companies cultivated
about 1.4% of the agricultural land and employed 1.2% of the agricultural labour force. These data may suggest that agroholdings are a marginal phenomenon. However, this appears to be a misleading interpretation. In some Russian Oblasts Agroholdings are basically not present, in others, especially in those in the south of Russia, the new players control about one third of the agricultural land, Oblast Orel 37% and Oblast Belgorod 31% (Kurtoeva 2003). Other organizations assumed that in 2002 about 8% of all agricultural enterprises belonged to the new players. (Bundesverband Deutscher Landwirte 2002) However, it is difficult to clarify whether these data show the dynamics of the development or are due to a different classification of agricultural enterprises. Nevertheless, some indicators support the first interpretation. In the beginning of 2002, membership to an holding was an almost unknown phenomenon in the Moscow Oblast. Two years later about one third of the farms were part of these organizations. The significance these organizations have in food processing and distribution is also very unclear.

2.2 Specialisation

Agroholdings and AFIGs consist of former corporate farms. Though, unsurprisingly they show a similar spectrum of agricultural production than these organisations. However, the integration of corporate farms is accompanied by a restructuring and a concentration of production activities which are pivotal to the company that integrate into the agricultural enterprises. Anyhow, agroholdings as a group are not distinguishable from other farms, whereas, individual holdings often have a very pronounced concentration on specific production activities (Table 1).

**TABLE 1: Specialisation of Selected Agroholdings**

<table>
<thead>
<tr>
<th>Agroholding</th>
<th>land (1000 ha)</th>
<th># enterprises</th>
<th>specialisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAZGULIAY-UKRROS</td>
<td>200</td>
<td></td>
<td>grain</td>
</tr>
<tr>
<td>RUSAGRO</td>
<td>57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STOILENSKAYA NIVA</td>
<td>314</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>OGO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGROS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUSAGROKAPITAL YOUG ROUSI</td>
<td>142</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>EFCO</td>
<td>46</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>UFC AGROHOLDING</td>
<td>75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Grey cells denote specialisation.

Table 1 looks at agroholdings that specialise primarily on grain production. However, these companies show at least one more important agricultural activity. The additional specialisation varies among the different holdings so that almost the whole agricultural spectrum is represented. Interestingly, dairy production attracted only minor attention by the agroholdings. Nevertheless, there exist food processors like WIMM BILL DANN whose market shares are over 50% for some milk products. The dominant form of co-ordination is through con-
tracts between the farmers and the processors and not through ownership or asset relationships (Hockmann et al. 2003).

2.3 Decision structures

The contractual or asset relationship between the holdings and agricultural enterprises include lease of land, provision of services, joint planning and coordination of agricultural production, the acquisition of farm a. o. m. In many holdings a mix of these forms could be observed, i.e., ties of different intensities link the various partners to each other. Moreover, the relationships between the partners may change over time. After an acquisition the farm usually becomes part of the central enterprise. However, after the end of the restructuring processes the enterprise is newly established and run in a form of a profit centre.

In AFIGs and holdings, one member of the holding takes on a central function and coordinates the activities of the other enterprises (Table 2). In this respect, it is responsible for strategic decisions like investment, staff development, production planning, marketing as well as distribution and use of profits. However, often the main company also directly influences the operative decisions, like the dates of sowing and harvesting. It can be assumed that the latter category of decisions will be in the responsibility of the holdings as long as the farm is not independent but run as an affiliate of the central company. Accordingly, the farms will have higher autonomy with regard to the operative decisions after they were re-established as legally independent enterprises.

| TABLE 2: Organisational Characteristics of Selected Agroholdings |
|-------------------|------------------|------------------|-------------------|------------------|
|                  | Malino | Niva Rjazan | Agroholding | AFIG Kamenskaya agroproydislennaja |
| initiator         | government | government | private | government |
| stage             | wholesaler with up- and downstream integration | new foundation, entire food chain | input supplier, downstream integration | new foundation, almost all agro-food enterprises within one Rayon |
| responsibility of main company | strategic and operative decisions | strategic and operative decisions | strategic decisions, only | strategic and operative decisions |
| governance        | ownership, contracts | ownership | ownership | ownership |
| main shareholder  | private | state | private | state |

Source: own compilation.

3 EMERGENCE

One of the main approaches to explain vertical integration is transaction costs economics as developed mainly by Williamson (1975, 1985). According to Williamson (1985) transactions can be characterised by three basic features, which he calls “dimensions”: frequency, uncertainty, and the amount of asset specific investment necessary to conduct the transaction. It is an indicator that shows to what extent an investment is adjusted to the spe-
cific requirements of the exchange partners, or in other words, it shows what alternative uses of the investment exits in case the original transaction fails. This dimension is considered by the theory to be of basic importance for the intensity of vertical relationships. The major problem with asset specificity is that a so-called hold-up problem may arise. Asset specificity leads to the “fundamental transformation”. While at the outset of the investment there was a large number of potential contractual partners and thus competition, after the specific investment has been carried out the situation is transformed into one of bilateral monopoly. In such a situation especially the owner of the specific asset is vulnerable, since the value of that capital in other uses is, by definition, much smaller than the specialized used it has been intended. In such a situation the other trading partner can put pressure on the one with the specific investment and force him to accept a revised contract. In particular, this will concern the distribution of the profits. The partner without specific investment can reduce the transfer of benefits to the other until his remuneration is equal to the opportunity costs (Williamson (1985).

One possibility to circumvent this hold-up Problem is to purchase property rights on the resources of the partner, i.e. to integrate vertically. However, it has to be taken into consideration that vertical integration is also not costless. The higher the degree of integration the more costs of administration and coordination might occur. One can speak of hierarchical transaction costs. From this perspective, all other things being equal, actors will choose a governance structure which is best suitable to economise on transaction costs. Market coordination is rational as long as the additional returns of integration in form of contracts or ownership are lower than the costs of these forms of governance.

Asset specificity becomes the more a problem, the greater the uncertainty of the transaction environment and the less the ability of third parties to assess the original agreement and to identify the reasons for its failure. In Russia, the low degree of market transparency, low predictability of legal decisions, and widespread corruption causes high uncertainties for the transaction partners. Under these conditions, the incentives to acquire property on the resources of the trading partners are relatively high. Thus, it can be assumed that the high uncertainty in the economic and the institutional environment is a major reason for the emergence of highly integrated structures.

The driving forces identified by transaction cost economics were amplified by the inherited mental models from the Soviet era. The lacking progress of agricultural restructuring led to a return of mental models and ideological values developed within the 70 years of socialism. Especially important in this context is the low self-responsibility and the reliance in public institutions regarding the co-ordination of individual behaviour. Correspondingly, the 1980s experienced already the emergence of highly integrated structures in the form of agro-industrial associations. Their organization and decision structures were similar to those of agro holdings and AFIGs. The associations were aiming at an intensification of the horizontal and vertical relationships, a coordination of production plans and at an increase of productivity and efficiency by specialization. A joined financial management was conducted to coordinate the investment activities of the members (Hockmann et al. 2003).

Other causes are related to the (macro-) economic conditions in Russia. The foundation of agroholdings accelerated after the Russian financial crises in August 1998. The devaluation of the rouble increased the profits of export-oriented natural resources industries (petroleum, gas, mining) significantly. In order to save taxes, these companies were looking for further profitable investment activities. Agricultural enterprises quickly got into their focus, where after the decline of production in the 1990s significant economic gains were expected. It was thought that import substitution and the development of export market enables the investors an easy exploitation of these potentials. In addition, the government supported the activities of the new players by the provision of tax privileges.
In addition, it can be expected that the low degree of concentration in the Russian food industry provided also incentives for the foundation of the highly integrated structures is. In comparison to Western Europe, the sector in Russia was highly fragmented. In order to gain from the exploitation of economies of scale and to increase competitiveness on the domestic and the international markets higher concentration and specialization was indispensable. In 2002 RAZGULIAY-UKRROS controlled 2002 about 12% of the Russian sugar market and 5% of the grain market. RUSAGROKAPITAL plans in increase its share on the market for flour from 10% today to 30% in the medium run. Together with the concentration, a specialization on selected branches could be observed. Besides grain trading, RAZGULIAY-UKRROS, for instance, is also active in poultry production. The required feeding stuff is produced in own factories from self-produced grain and additional ingredients (Interfax, various issues).

4 EFFICIENCY: THE TECHNOLOGICAL PERSPECTIVE

It has been shown that intense vertical integration in the Russian agro-food sector is a response to the very special institutional conditions in this country. It can be expected that these structures will prevail as long as these conditions persist. However, while the adjustment to the institutional environment appears to be appropriate, it has to be investigated whether the developments also represents an optimal response to the technological requirements.

4.1 The Induced Innovation Hypothesis

Hayami and Ruttan (1986) formulated a theory for accessing technological trajectories in agricultural production. By distinguishing countries according to the availability of inputs (low and high land endowments) they identified characteristic development paths in the process of economic growth. In particular, economic growth in countries with a high land endowment will lead to the adoption of labour saving technologies. This process is caused by increasing wages induced by growing demand for labour outside agriculture. Cost minimization in this case requires a substitution of labour by capital in the form of new equipment and/or machinery. On the other hand, when land is scarce, labour saving technologies are an inferior solution. The scarcity of land calls for land saving technologies thus for a substitution of land by improved material inputs (pesticides, seed, fertilizer).

In addition, change in factor prices also provides a basic incentive for the development of agricultural technologies. Scarcity of land will lead to a specialization of research and development on land saving technologies, while labour saving technologies mainly invented in countries with a high land endowment. Moreover, if factor markets work appropriately, the adoption and invention of appropriate technologies ids also efficient form a social point of view. The countries concentrate on those technologies which uses the abundant factor intensively.

The impact of the different technologies on agricultural production can be easily assessed by the following relationship:

\[
\frac{Y}{L} = \frac{Y}{A} \frac{A}{L},
\]

where \( Y, L, A \) denotes output, labour input, and land, respectively. The impact of technology is represented on the right side of equation (1). Land saving technologies are gen-
erally associated with a high output per hectare (Y/L). Accordingly, labour saving technolo-
gies found their expression in the man land ratio (A/L), because the more land is cultivated
per worker the higher is the requirement for equipment and machinery. Thus, land man ratio is
focal in this context with respect to the identification of technologies. Moreover, the product
of the two indicators provides insights about the efficiency of agricultural production given by
the partial productivity of land.

4.2 Input markets in Russian agriculture

According to the induced innovation hypothesis functioning input markets are a pre-
requisite for an efficient choice of technologies and an exploitation of competitive advantages.
However, there are serious doubts that the market prices for capital, land and labour corre-
spond to the shadow prices. This implies that the farm’s incentives regarding the choice of
technology are biased, i.e. not aligned with the shadow prices of inputs.

Even more then 10 years after the beginning of transition the land market is already
rudimentary developed. One of the main reasons is the insufficient assignment of property
rights. During the privatisation process land titles were introduced and distributed to benefici-
aries, however, often the titles were often not allocated to specific plots. In addition, agricul-
tural land could until recently not be sold but only be leased. Both factors hamper the devel-
opment of a functioning land market (Schulze 2000). One the one hand, agricultural land is
relatively abundant, so a malfunctioning land market may be a minor problem, however, since
the market is underdeveloped the signals for allocation are incorrectly transmitted. This con-
cerns especially the movement of this factor to the most productive producers. This view is
supported by two empirical facts. First, a significant part of agricultural land is not cultivated
but remains fallow in each year. Second, private farming is still a marginal phenomenon in

Rural labour markets are also poorly developed. Seven decades of socialism in the
former Soviet Union have created a complex mix of formal and informal institutions, that
certainly had an impact on the subjective models of the economic agents in post-soviet Russia
that determine today’s institutional choices. Before 1990, labour input was not determined by
profit maximization. In addition, farms were also obliged to provide the infrastructure within
the rural areas. This, however, concerns not only transport facilities or medical care a. o. m.
but also the provision of jobs for the rural population (Koester 2005). The lack of economic
pressures to adjust the institutional environment in rural areas together with the inertia of in-
formal institutions (North 1992) has caused a significant hidden unemployment on corporate
farms. Moreover, the institutional settings prevent the release of labour. Agroholdings differ
in this respect from corporate farms. In general, the main company was successful in other
branches because they adjusted to market forces. Thus, profit maximising principles are more
expressed in these enterprises. Accordingly, when joining an agroholding a corporate farm
goes through a restructuring process which concerns not only the decision mechanism and
farm organisation, but also labour input.

However, the fact that property rights are not strongly defined has a consequence for
the capital market. Because of their difficult situation, corporate farms need credits to conduct
their investment plans. The infeasibility to contract on all future contingencies creates the
possibility for opportunistic behaviour. Thus, an adverse selection problem exists that ham-
pers the development of the capital market. In Western countries, this problem is usually cir-
cumvented by using agricultural land as the collateral. However, this mechanism can only be
adopted, when property rights on land are well defined. A failure in this respect will lead to
credit rationing and a suboptimal capital input from a social point of view. In addition, on the
supply side a poorly developed rural credit system restricts the functioning of the capital mar-
ket (Csaki et al. 2002). Thus, an industrialised economy like the Russian is only provided with a malfunctioning capital market more typically for underdeveloped countries. Agroholdings sometimes contain a bank which provides the members with the financial means to conduct investment. However, most often, the main company provides the necessary means directly to the farms. Thus, these groups can be considered a one solution of the malfunctioning of the rural credit market.

4.3 Technology and efficiency of agroholdings

In this chapter some empirical evidence of the induced innovation hypothesis will be discussed. Our data set consists of production and factor use of agroholdings in the Belgorod Oblast between 2001 and 2003. First, their choice of techniques is compared to three different groups of farms: private and corporate farms in Russia, and corporate farms in the Oblast that are not member of an agroholding. However, because of the lack of data, the agroholdings can only be compared to the average of these groups (Figure 1). The straight lines through the origins represent different land man ratios. The data provide that corporate farms in Russia and in the Oblast apply almost the same technology. Compared to the holdings, this technology is more labour intensive. The lowest labour intensity is observed for private farms in Russia.

FIGURE 1: Choice of Technology by Organisational Form

Agroholdings and corporate farms show a similar specialisation in agricultural production. Both groups engage in animal as well as crop production. However, the production structure of private farms is quite different. This group has concentrated on almost entirely on crop production, so that a comparison of technologies would provide misleading results. However, the lower labour intensity in agroholdings corresponds to the theoretical arguments
presented above: This group is less restricted in its employment policy. In addition the financial means to restructure production and to adopt cost minimizing technologies are available.

The efficiency of the groups can be assessed with Figure 2, which is a graphical representation of (1). The axes are taken in a logarithmic scale. Thus, labour productivity along the straight lines are constant. The lying on a line can be considered as similar efficient. However, they differ only with respect to the relative importance of labour and land saving technologies. Since labour productivity is decreasing as the line of equal labour productivity moves towards the origin, efficiency of farming will be lower the more a point is located beneath the red line.

Figure 2 provides that the lowest efficiency exists in the group which represents the average farm in Russia. This observation is not astonishing since Belgorod Oblast has favourable natural resources compared to other regions in the Russian Federation. The data show also that it is not possible to distinguish corporate farms in the Oblast and private farms in Russia with regard to efficiency. However, only a few agroholdings in the Oblast reach the efficiency level of the former groups. This suggests that despite restructuring and the implementation of new technologies the agroholdings are lacking behind the development of other farms in the Oblast. However, how far these groups will provide a prospect for the future depends on whether they will be able to provide factor remunerations comparable to those of alternative uses.

FIGURE 2: Efficiency of Agricultural Production by Organisational Form

Some recent developments support the view that the formation of agroholdings and AFIGs is not a guarantee for a creation of an efficient agriculture. In fact, restructuring of labour and capital input appears to be insufficient to move agricultural production towards an efficient trajectory. For instance, in 2002 GAZPROM 2002 wanted to sell more than one half of its 91 agricultural enterprises. TATNEFT, another oil company, disposed 21 large farms. RAZGULIAY-UKRROS contemplates retreating from grain production and concentration on grain trading. A manager of PRODIMEKS, an agribusiness company, assessed the production activities also very critical. According to him, the company would be already bankrupt, if agriculture would be the only business of his firm. However, contradictory to this develop-
ment is the still unbroken tendency towards integration as the developments in Moscow Oblast shows (Interfax, various issues).

5 FINAL REMARKS

The previous chapters discussed the reasons for the emergence of the new players in Russian agriculture. Agroholdings and AFIGs can be considered as one possibility to adjust to the special institutional and economic conditions in Russian agriculture. Because of their ability to react to market failures on the labour, capital and land market in another way than corporate and private farms the new players apply different technologies. However, the data suggest that many agroholdings are less efficient than alternative organisational forms. One of the reasons for this observation may be the insufficient recognition of economic forces governing integration processes and the requirements for decision making.

When looking at the value chains in Western Europe, the optimal integration structure is apparently achieved where one distinguishes between input procurement and agricultural production, production and processing, and processing and wholesale or retailing. Depending on the specific value chains, the various stages are visible more or less strong. The stages are often clearly distinguishable in crop production, however, while the poultry sector encompasses the whole value chain expect retailing. With this interpretation, agriculture has to be regarded as a sector with optimal intensity of integration, since several stages from land cultivation until harvesting take place within one enterprise. The direction of integration takes place in various ways within the stages as well as between the stages. For instance, a farmer does not necessarily need to be the owner of the land, often he can lease this factor. Similarly it can be observed that farmers posses significant shares in the processing sector. Typical examples are sugar factories and dairy companies (Allen and Lueck 2002).

This implies that the direction of integration is important for the functioning of the structures. This indicates that besides the advantages and disadvantages of integration the distribution of property rights on resources is of pivotal importance. In principle is important that the investment incentives of that partner are corrected towards a fictive first best, who incurs the highest losses through the abandonment of integration. Thus, the direction of integration is determined by the partner who is conducting the most specific investment, i.e., whose losses resulting from the hold-up problem are the highest.

In comparison agroholdings and AFIGs in Russia show only a low variability in the distribution of property rights and income structures. On the contrary, integration is characterized by a process that encompasses the whole value chain. The main reason for this difference to Western countries is the functioning of the capital market. In Western Europe farmers and other stakeholders in the value chain possess relatively good opportunities to finance their investment activities by credits. Thus, investments are generally decentrally coordinated and depend on the potential benefits for the investor.

NOTES

1 Dr. Heinrich Hockmann is acting head of the department Agricultural Markets, Agricultural Marketing and World Agricultural Trade at the Institute of Agricultural Development in Central in Eastern Europe in Halle, Germany. Dr. Jürgen Wandel is research associate at the Institute of Agricultural Economics of the Martin-Luther-University Halle-Wittenberg, and Dr. Andriy Nedoborovskyi is research associate at IAMO. Paper presented at the EAAE Seminar on Institutional Units in Agriculture, held in Wye, UK, April 9-10,2005

2 The basic difference between an agroholding and an AFIG is rather institutional: AFIGs are
listed in the commercial register. However, this can only be done, if a bank is one of the members of 
the organization. The advantage of registering is the facilitated access to subsidies and tax privileges.

3 The empirical findings are also consistent with the governor’s assessment of agroholdings in 
the Belgorod Oblast. Only eight of the 15 agroholdings are said to have fulfilled the expectations with 
regard to the modernization of the capital stock, and the introduction of modern management tech-
niques Agenstvo Agrofakt (2003).

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